Scandinavian Journal of Management 35 (2019) 101062

Contents lists available at ScienceDirect

Scandinavian Journal of Management

journal homepage: www.elsevier.com/locate/scajman

Responsibility accounting, managerial action and 'a counter-ability': Relating the physical and virtual spaces of decision-making

Niels Joseph Lennon

Department of Business and Management, Aalborg University, Fibigerstræde 11, 9220 Aalborg O., Denmark

ARTICLE INFO

Keywords:
Responsibility accounting
Decision rights
Accountability
Performance
Virtual space
Managerial action

ABSTRACT

This study examines how the economic structures of responsibility accounting (RA) affect decision-making and managerial action. It analyses how decision rights transform and affect managerial action and argue that functionalist approaches to organising a company through RA principles are inexpedient. The argument is based on two spaces related to decision-making and managerial action – physical space and virtual space – and addresses the managerial effects of RA with respect to these spaces. The RA literature argues that the design of RA should be based on its context and its structure should be stable. However, the study presented here shows how the effects of RA emerge in a process of development and transformation of the organisation. When an organisation and its management control system cannot embrace the dynamism of the physical space, the resulting managerial actions and decision-making are tumultuous; accountability in this context means possessing 'a counter-ability', not being 'accountable'. Accounting forms a virtual organisational space, and the relationships between physical and virtual spaces co-construct the organisational effects of RA.

1. Introduction

In the literature, responsibility accounting (RA) is treated as a problem of adding an economic structure to the structures supporting decision rights in organisations. It is studied from a predominantly functionalist research perspective, whereby an organisation is considered to be an effect of structures and calculations rather than their premises (Justesen & Mouritsen, 2011), and rationality is assumed in decision-making (see Horngren, 1978; Mouritsen, 1994). According to the RA literature, this implies that the interests of decision-makers in organisations should be aligned with the organisation's objectives through the design of (economic) structures of responsibility. Thus, the aligned behaviour of decision-makers emerges as an effect of RA design. RA structures should be designed to correlate with different contingencies, meaning that decision rights and economic accountability should be designed and changed in accordance with changes in these environmental conditions (contingencies) (Rowe, Birnberg, & Shields, 2008).

However, constructivist research has problematised the claims of functionalist approaches to management accounting research, as functionalist approaches have clear limitations in their generalised way of theorising accounting in practice (e.g. Chua, 1995; Preston, Cooper, & Coombs, 1992; Robson, 1992) where the etic research approach leads to overgeneralised and standardised explanations (Granlund & Lukka, 2017; Kakkuri-Knuuttila, Lukka, & Kuorikoski, 2008) that miss the emic, context-specific meaning of action (Granlund & Lukka, 2017). This article echoes this problematisation by taking an emic, constructivist epistemological viewpoint in understanding how RA creates organisational effects. Accordingly, I ask what affects decision-making and managerial action in a responsibility-center organisational design. In other words, the purpose of the research is to understand how managerial action and decision-making occur in an organisation in which financial responsibility is decentralised by means of RA. By taking this focus, the paper shows emically how the organisational effects of RA are brought about.

This paper connects with prior literature on how accounting generates relationships between headquarters (HQs) and subsidiaries through accounting systems, such as performance measurement systems (PMSs) (Cooper & Ezzamel, 2013) and responsibility accounting (Bloomfield, Coombs, Cooper, & Rea, 1992; Skærbæk & Tryggestad, 2010). It shares this stream of literature's interest in applying a performative, constructivist lens to accounting devices and calculations. However, it theorises the practice in a different manner than prior studies. For example, Bloomfield et al. (1992) show that the process of creating accounting systems such as RA is a matter of power relationships between the different actors engaged with its composition. Furthermore, success involves enrolling both human and technological allies and establishing an obligatory passage point (Callon, 1986), and

E-mail address: njl@business.aau.dk.

https://doi.org/10.1016/j.scaman.2019.101062
Received 25 September 2017; Received in revised form 17 June 2019; Accepted 4 July 2019

it is important to consider this process of composing RA to understand its effects. Thus, the contribution of Bloomfield et al. (1992) is their suggestion for researchers to apply a constructivist methodological lens (e.g. actor–network theory) when the intention is to study how various effects of a technology come about. The composition of accounting technologies and their interpretive flexibility therefore mean that their process of construction and the power struggles between different stakeholder groups affect the technology's practical mobilisation.

Skærbæk and Tryggestad (2010) argue that accounting devices such as RA perform strategy and change the identity and role of key operating staff such that they become barely distinguishable from an accountant responsible for costs and revenues (p. 116). They discuss how the RA structure established within an enterprise resource planning (ERP) system, as well as other accounting devices, refines and delimits a company's strategic options and translates strategy into an 'adaptive strategy' rather than a strategy aimed at growth.

Cooper and Ezzamel (2013) focus on the way in which the discourse of globalisation is engaged with, consumed, appropriated, re-produced, disseminated and promoted in a multinational company, with a strong focus on the discourse. However, the authors focus on the relationship between HQ and sub-units without explicitly researching RA. As a subtheme, Cooper and Ezzamel (2013) argue that sub-units have different possible strategies of engagement with 'global' discourses articulated by HQ and the discourse's molestation (the gap between the authored discourse and reality). These strategies are either non-compliance with the PMS from HQ, through losses in translation between the global and local articulation of the discourse or by the specific context or resistance to the initiatives coming from HQ. Thus, while their research provides important insights into the translation of discourse from the global to the local within the boundaries of one multinational company, they do not explicitly focus on how accounting, and especially RA, mediates managerial action. They only address this in part by considering how the specific context influences the adaption of the global discourse.

While previous studies provide insights about the composition of accounting technologies such as RA and the relationship between accounting devices, discourses and strategy, this paper studies and theorises accounting as a technology of governance (Miller & Rose, 1990) that forms an organisational space and mediates managerial action within a company.

The article also contributes to a related stream of research on incomplete and weak performance indicators (Dambrin & Robson, 2011; Jordan & Messner, 2012). Jordan and Messner (2012) define incomplete performance indicators as accounting information that fails to reflect important dimensions of an organisation's performance. In such cases, 'accounting information can be considered an incomplete representation of organizational performance and thus also an incomplete guide for appropriate action' (p. 547). Thus, by their definition, a measure can be 'less' or 'more' incomplete depending on how well the indicators represent the overall organisational performance. Therefore, incompleteness is something that could be handled in the PMS design phase by paying attention to designing more 'complete' performance measures. The present article adds to this literature by showing how an organisation lives with incomplete performance measures and how managers' 'counter-abilities' provide a strategy for doing so. This also extends Dambrin and Robson (2011) by illustrating how weak performance measures can produce effects in situations in which their referent is not traceable or where there is ambiguity about what the referent is; in such situations, the managers' 'counter-abilities' can be a way to manage the weakness and make performance measures work in practice despite their weakness or incompleteness.

The article's empirical material comes from a case study conducted in a subsidiary of a multinational corporation. The subsidiary is treated as a profit centre in the corporation's RA structure. The empirical data mainly consist of documentation of managerial actions and decision-making in the responsibility centre.

To analyse the data, two spaces related to decision-making and managerial action are developed: the virtual space and the physical space. Evidence from the case study illustrates how accounting works as an arrangement of a virtual space (or several virtual spaces, as we see in the analysis) wherein certain things in the physical space are organised and visualised in certain ways and are thereby rendered important. The conceptualisation of accounting as a virtual space with relationships to physical space has implications for how accounting constitutes managerial possibilities, as the possibilities for managerial action are considered framed and mediated by the virtual space of accounting. At the same time, however, managerial possibilities also exist outside the boundaries formed by the virtual space of accounting.

By discussing managerial action related to these spaces, the article contributes to theory about the structure and dynamics of the distribution of decision rights in organisations and their related effects on managerial action. In line with Quattrone and Hopper (2001)'s and Andon, Baxter, and Chua (2007)'s focus on the dynamic nature of management accounting, this study shows that the decision rights structures in an RA setting are in a continuous process of development and transformation when they are put into practice because of the relations between the physical and virtual spaces.

The reason for this transformation of decision rights structures in practice is that accounting produces incomplete and unreliable knowledge about the physical space of the organisation and the market. This unreliability is highlighted by the fact that accounting numbers are not trusted as a 'true' account of the performance of the business units; rather, such accounts must be viewed with respect to the context in which they are produced to understand how they work as classifications of 'good' or 'bad' performance. Therefore, the performance of the organisation and managers is exposed to different contextualisations and, thus, to different interpretations in understanding whether a performance account describes an actual underperformance or whether the account is perceived as 'unreliable'. The latter occurs when the structures of the organisation and its management control system cannot embrace the dynamism of the physical and virtual spaces. As a result, the managerial decisions and actions become tumultuous. In the case study, the planning mechanism in place before introducing RA was more apparent, and the decision rights were clear, even though the original mechanism lacked the economic dimension RA was supposed to offer.

This contribution also relates to functionalist research on RA, where RA design is considered a structural problem of aligning decision rights and economic responsibility to increase the performance of sub-units in decentralised organisations (Anthony & Govindarajan, 2003; Horngren, 1978; McNally, 1980). This is elaborated by Rowe et al. (2008), who first show how RA can act as a mechanism for horizontally managing groups, teams or committees of several functionally differentiated responsibility centre (RC) managers and then show that this has effects on competition versus cooperation between RC managers. Contrary to insights provided by functionalist RA theory, the present study offers an alternative theorisation on the effects of the relationship between RA, the distribution of decision rights and managerial action. In the study of Rowe et al. (2008), the problem associated with getting RA to work is considered a problem of fit/misfit between the strategy and RA design variables.[1] Inadequate RA design can cause RC managers to hide private knowledge that is important to the organisation's understanding of opportunities that can be exploited to increase organisational performance. However, this research argues that the organisational effects of RA in practice do not result directly from its design, as argued by contingency theory and theory on the design characteristics of performance indicators, but rather is an effect of the practical mobilisation of RA in the particular organisational setting and all the different interests

[1] RA design is modelled through the three variables 'RC boundaries', 'RC measurability' and 'knowledge of the causes and effects of RC boundaries'.

and actions of the actors who work within the RA organisation. Thus, RA plays an important role in the performance of managerial action because calculations in the RA structures arrange certain matters as important, but RA structures also provide a frame within which managerial action and responsibility are justified and evaluated (the 'true' performance) as either 'good' or 'bad'. However, these accounts are exposed to contextualisation, which challenges their reliability as indicators of the 'true' performance of business units and managers.

This means that RA is not an activity representing the performance of business units and responsible managers, thereby aligning their interests with those of the organisation; rather, the particular context in which RA is mobilised plays an active role in the very effects it produces. Therefore, managerial accountability in the RC is more about possessing 'a counter-ability', which is used to develop counter-arguments when HQ raises claims of unsatisfactory performance, than it is about managers using their specific knowledge to manage their assigned responsibilities in the best interests of the organisation.

The rest of the article is structured as follows. The next section sets out the literature on RA. Following this, the research approach is described. Then, the analysis describes the mobilisation of RCs in a practical setting. Subsequently, the two spaces developed in the analytical approach are discussed and related to the mobilisation of RA. The final section presents the conclusions.

2. Literature review: managerial action in responsibility centres

RA is a costing approach whereby the organisation is divided into RCs. Each RC is accountable for the performance of the sub-unit. Therefore, RA is a mechanism for managing the financial performance of RCs and includes the joint activities in which the group of RC managers are jointly accountable for their aggregate performance (Rowe et al., 2008). The RA literature argues that RC managers should be held accountable for their actions by measuring their performance via specific calculations. Consequently, RA is an accounting system used to construct accountability relationships (Ijiri, 1975; Rowe et al., 2008). This section reviews the literature on RA and accountability.

2.1. Managerial action in responsibility centres

RA is an important mechanism in the interface between management accounting and organisational strategies and structures (Rowe et al., 2008). The idea originated in cost accounting and dates back to Higgins (1952). Higgins conceptualises RA slightly differently than Rowe et al. (2008) as an accounting system in which costs are assigned to decentralised business units, which are responsible for controlling these costs. For RA to work properly, costs should be assigned to the people in the organisation who can control them (Higgins, 1952; Hirst, 1983; Kohler, 1983; McNally, 1980). RA is therefore grounded in decentralised decision-making (Jensen & Meckling, 1995).

Decentralised decision-making takes advantage of the specific information distributed in organisations. Decision rights are allocated to an RC manager, and the information needed to make decisions is in the RC and not in the centralised part of the organisation; this information is utilised without the cost of communicating it (Jensen & Meckling, 1995; Melumad, Mookherjee, & Reichelstein, 1992). Thus, the more specific knowledge a business unit has, the more decision rights should be assigned to it and, as a consequence, the broader its financial responsibility should be (Anthony & Govindarajan, 2003; Merchant & Van der Stede, 2007; Zimmerman, 2009).

RA conceptualises different RCs based on their decision-making authority. Among the different types of RCs are revenue centres, expense centres, profit centres and investment centres (Anthony & Govindarajan, 2003; Melumad et al., 1992). In principle, revenue centres are responsible for sales figures despite being unable to control purchase prices or the cost of goods sold. Expense centres are responsible for inputs in the production function and for managing the efficiency and effectiveness of the production, even though the output level is fixed externally (Anthony & Govindarajan, 2003; Melumad et al., 1992).

As their name indicates, revenue centres are measured based on revenue, which means they are measured on their ability to find markets for their products relative to the standards set in the RC budget. However, revenue centres are not measured in relation to the cost of goods or the costs of producing the goods they sell.

Expense centres are measured on costs and on their ability to take inputs in the production function and process them into outputs (i.e. products or services). However, the responsibility for generating revenues from these products or services and managing sales levels is allocated to other business units; hence, the output level is external to the department. Expense centres include production departments as well as, for example, marketing departments, accounting departments and HR departments. The objective of cost centres is to utilise inputs to the extent the company finds reasonable (e.g. by setting standards and targets) and to direct behaviour towards these standards and evaluate good and bad performance relative to them (Bulloch, 1964). Profit centres are measured based on profit, which means each centre's manager is held accountable for both the revenue side and the cost side as well as the ability to exploit specific knowledge on both sides (Jensen & Meckling, 1995; Melumad et al., 1992). Thus, both production levels and efficient resource consumption are endogenous to the centre (i.e. they vary with the information held by the employees in the centre). Therefore, profit centres are allocated the decision rights to control both the cost side and the revenue side of the business unit and are therefore responsible for both the cost of goods and the revenue they generate.

In a more recent contribution, Rowe et al. (2008) define RA rather broadly as a mechanism for horizontally managing groups, teams or committees of several functionally differentiated RC managers. The way in which this is done has effects on competition versus cooperation between RC managers. Rowe et al. (2008) consider the problem associated with RA to be one of fit/misfit between strategy and RA design variables ('RC boundaries', 'RC measurability' and 'knowledge of the causes and effects of RC boundaries'). When these design variables do not fit the business strategy, as mentioned earlier, RC managers may hide private knowledge, impairing the organisation's ability to increase organisational performance.

2.2. Summing up

The literature on RA is limited and based on a functionalist perspective (Anthony & Govindarajan, 2003; Bulloch, 1964; Rowe et al., 2008). The functionalist approach echoes the overarching principle that if a RC is designed appropriately and the optimal structure is in place, then its behaviour and decisions will align with this design and structure and motivate the desired behaviour in its managers.

In light of that, and also following the call of Rowe et al. (2008) for additional research on RA, this article can be read as a story of misalignment between decision rights and RA; the article provides theories about why this misalignment happens. However, this research can also be viewed as a constructivist perspective on the development and effects of RA and how accounting places obstacles in the way of RC managers' managerial actions and their efficient utilisation of their allocated decision rights. From that perspective, accounting and RA are not harmless representational activities with effects that can be anticipated based on their design, as accounting involves co-constructing and magnifying managerial problems (Chua, 1995). By invoking this line of thought, this research shows, contrary to Rowe et al. (2008), that while the intentions of an organisation may be to design effective, reasonable RA structures from the very start, the different stakes involved in the process of mobilising RA in practice can challenge and change the organisational consequences of RA. This leads to surprising effects on how the distribution of decision rights works in a responsibility accounting setup, and this distribution of decision rights has consequences for decision-making and managerial actions.

As RA is widely used in both the private and public sectors (Lapsley, 1994), it is surprising that no constructivist research has yet been conducted explicitly on the functioning of RA. The studies that comes closest to this are Dambrin and Robson (2011), who focus on how 'weak' performance measures achieve organisational effects, Jordan and Messner (2012), who study how the incompleteness of performance indicators can challenge and change an 'enabling' performance measurement use to a 'coercive' use, Cooper and Ezzamel (2013), who study how a global discourse of globalisation is put into practice as well as the ways in which managers engage with the discourse, and Skærbæk and Tryggestad (2010), who focus on strategizing and how RA can be an organizational strategizing device. This study addresses this research gap, allowing for different theories and insights into the effects of RCs on managerial action compared to research building on accounting in principle (Catasús, 2008), such as that of Rowe et al. (2008), who study cause–effect relationships between design variables and cooperation/competition between RC managers and their hiding/revelation of private knowledge.

3. Research approach and method

The focus in this article is on the effects of RA on managerial action. The analysis is organised to identify how decision-making in a RC design works and how the space of decision-making is framed.

3.1. Research approach: development of two spaces of managerial action

Early in this research, it was realised that spaces are an important aspect of how RC design affects managerial action (Miller & Power, 2013). Taking theoretical inspiration from actor–network theory and Foucauldian-inspired research (Miller & O'Leary, 1994; Hopper & Macintosh, 1993; Mennicken & Miller, 2012; Miller & O'Leary, 1987; Miller, 2001; Quattrone & Hopper, 2005; Revellino & Mouritsen, 2015), I develop two spaces of importance for managerial action in the RC. The first is the virtual space, constituted by accounting calculations, while the second is the physical space of the organisation and the market[2] in which the company operates. These are theorised below.

Miller and Power (2013) argue that one of the organisational roles of accounting is to delineate *the physical space* in which a company operates. In this way, accounting constructs the boundaries of the physical space. Thus, accounting, including the accounting information system, relates to the physical space by defining entities of relevance in the physical space. In the market, this means, for example, who and where the customers are. Within the company, accounting also changes the need for physical proximity between HQ and subsidiaries by making it possible to act at a distance. Accounting frames the physical space of 'them' and 'us', the boundaries of departments, the subsidiary, HQ and the market. In addition to this social contextualisation of the company's actors, the physical space also includes material components that are capable of connecting with the virtual space. For example, a mundane object such as a credit card has the capacity to change the performance indicators in the accounting system (i.e. when people spend money, a barcode scanner has the capacity to change the locus of products and materials, thus moving them from one RC to another, and a computer in the accounting department has the ability to change the performance numbers, for example, by recording transactions in bookkeeping).

One stream of accounting literature has argued that accounting produces a *virtual space* (Quattrone & Hopper, 2005; Revellino & Mouritsen, 2015). To develop an understanding of what that means, we look deeper into the origin and meaning of the term 'virtual', both in a linguistic sense and in the accounting research. Etymologically, *virtual* comes from *virtualis*, which according to the *Oxford English Dictionary* means 'related to power or potency' (*Oxford English Dictionary*, 2018). In physics, 'virtual' means 'producing, or capable of producing, a particular result'. In that sense, accounting research has definitely highlighted that accounting is virtual: both management and financial accounting have the power to produce organisational and behavioural effects (Hopper & Macintosh, 1993; Neimark & Tinker, 1986).

'Virtual' is also a word connected with computing. In computing, 'virtual' refers to something that is 'not physically present as such but made by software to appear to be so from the point of view of a program or user' (*Oxford English Dictionary*, 2018). This is the case for accounting; contemporary accounting information is produced in an accounting information system, often an ERP system (Quattrone & Hopper, 2005). Thus, accounting is virtual in the sense that it is not physically present but is made to appear so by the accounting software. In computing, however, 'virtual' also connotes something 'that is a computerised or digitised simulation of something' (*Oxford English Dictionary*, 2018). Post-modern research perspectives on accounting, inspired by actor–network theory and Foucauldian theory, have in several cases shown how accounting simulates a version of the reality within which the organisation acts (Chua, 1995; Macintosh, Shaerer, Thornton, & Welker, 2000). Thus, accounting provides a *virtual space* that comprises representations of physical space and demarcations of boundaries between business entities through calculations (e.g. subsidiary versus HQ and production department versus sales department). Accounting as a virtual space therefore demarcates the organisation in certain ways and creates relationships between organisational entities.

The virtual space of accounting is produced by calculations of different elements of the physical space. These calculations (re)present, for example, the performance of different organisational units in relation to other entities, such as customers, suppliers and owners. In the virtual space, the organisational structure is also established by delineating the boundaries of RCs, product groups and line items (analogous to the abstract space from Miller & Power, 2013, p. 562). But, where Miller and Power's abstract space is related to the demarcation of entities in accounting and to creating relations between them, accounting as a virtual space, according to the discussion above, is a more specific instance of their abstract space. The virtual space of accounting is a space produced by software and consisting of calculations not physically present but made to exist by the software. In this sense, accounting as a virtual space is a computerised simulation of the performance of organisational entities[3] . This understanding of the virtual space is

[2] By 'market', we refer to the physical composition of the market, with customers in physical geographical locations, whom the case company's managers regularly visit to promote their products, and not the heterogeneous and material composition of the market as it has been conceptualised in the marketisation literature (Cochoy, 2008; Cochoy, Trompette, & Araujo, 2016; Karpik, 2010) and the research on making markets (Miller & O'Leary, 2007). While marketisation and market making both view markets as heterogeneous compositions between physical entities and mediating instruments (which are calculative devices and therefore belong to the abstract space), we focus on the market's physical composition.

[3] Accounting as a virtual space is highlighted as a digital space here. This came out of the empirics of the paper, where accounting was carried out in their accounting information system (AIS). If accounting and reporting were done using pen and paper, it could still be a virtual space; the procedures that describe how accounting should be done would then constitute the 'program' (software code), and the accountant that performed them would constitute the 'computer'. However, the AIS makes it easier to record the data according to dimensions set up in the AIS and to make and automate arithmetic operations on the accounting numbers, with respect to the dimensions set up in the system. Thus, the AIS makes it easier to put into practice the principles of responsibility accounting because in the AIS the responsibility accounting reports can be generated on different responsibility centres with less manual work. In principle, therefore, the pen-and-paper variant would also constitute a virtual simulation of the performance of organisational entities, but one where calculations on accounting numbers and reporting would be much more difficult and

informed by prior accounting research on space (Pollock & Campagnolo, 2015; Quattrone & Hopper, 2005; Revellino & Mouritsen, 2015). Quattrone and Hopper (2005) define a space as consisting of distance and relations (relations between entities), and they argue that accounting produces such distance because, echoing Robson (1992), 'attributes of distance are not merely physical' (p. 737). Thus, accounting produces virtual distance between entities in centres and entities in peripheries. Accordingly, accounting produces a virtual space in the sense that it creates both entities and relations between these entities. However, the conceptualisation of accounting's calculative practices and calculative agency (Pollock & Campagnolo, 2015) as producing a space is not new in accounting research. For example, similar to the way in which Quattrone and Hopper (2005) talk about the ERP system as a virtual space, Revellino and Mouritsen (2015) use the notion of the 'virtual space' (p. 40) and 'technological space' (p. 47).

Thus, space is not only the three-dimensional physical arrangement of entities and the distances between them. The virtual space of accounting comprises different kinds of accounting calculations, such as cost and revenue, as well as profitability calculations, ROI calculations and other key performance indicators (KPIs). These calculations, which end up as accounting numbers, define the entities that exist in the virtual space (e.g. categories that render certain units responsible and categories that constitute good and bad levels of performance) as well as the relationships between these entities. As such, the virtual space forms the space within which accounting as a calculative practice occurs (Quattrone & Hopper, 2005; Revellino & Mouritsen, 2015) and within which organisational boundaries and demarcations between performing units, both internal and external, are drawn. In this way, the virtual space translates the physical space into calculable and measurable entities and thus organises the organisational space differently than what is possible within the boundaries of physical space itself. Transforming concerns from the physical space to calculations and numbers in the virtual space occurs through the process of translation (Robson, 1991). However, accounting as translation and as the production of accounting inscriptions has been thoroughly researched, so the present argument is not concerned with the actual processes of translation.

The two spaces will be used herein to focus attention on how managerial action and decision-making in RA is brought into effect through tensions and relations between the physical space and the virtual space. These spaces are used actively in the analysis and discussion to describe the processual dynamics that transform the decision rights and to question what accountability is and how it is handled.

3.2. Research method

The research is based on data from a 1.5-year longitudinal case study of a Danish sales subsidiary of a publicly listed production company. The company is organised according to the principles of RA. The case study was conducted with a special focus on the tensions and calculations mobilised in the RA design in decision-making situations.

The data consist of field observations, interviews and internal documents from the company. Twenty-one interviews were conducted between 2009 and 2011, each about an hour long, and all were transcribed. The field notes covered 17 days in the company between November 2009 and October 2010 (mainly concentrated in April and May 2010, when the CFO worked intensively on a new accounting practice built on the principles of RA).

The interviews were reflexive, carried out with the aim of constructing spaces in which the researcher worked along with the interviewees to understand the relationship between theory and practice (Alvesson, 2003). Hence, the practice under investigation became a critical dialogue partner, as the researcher focussed on the embeddedness of accounting in the practical setting in the case company (Alvesson & Karreman, 2007). Methodologically, this was done as an inductive analysis in the data coding process through the use of NVIVO's open coding functionality 'free nodes' (Emerson, Fretz, & Shaw, 1995). The codes were constructed directly from the data and not from an a priori defined coding scheme. This helped us identify and understand the dynamics of managerial action and decision-making in an RA context (Miles, Huberman, & Saldaña, 2014; Strauss, 1987), with the purpose of understanding accounting in practice from an emic perspective (see Catasús, 2008).

3.3. The case company

The case company's name is withheld for reasons of privacy, and it will be referred to here as Disability Corp. Denmark. It is a subsidiary of an international group, Disability Corp. International, owned by Disability Tech. Holding. Both Disability Corp. International and Disability Tech. Holding have HQ in Germany. The group has several subsidiaries in the Far East, which produce high-tech equipment for disabled persons, and this equipment is sold by subsidiaries in other locations to their particular markets.

Disability Corp. International has sales subsidiaries in all European countries. Disability Corp. Denmark is responsible for sales in the Danish market. The Danish subsidiary is organised as a profit centre, and the decision rights to control all line items in their budget have been allocated to them. In 2009, when the case study began, Disability Corp. Denmark had the right to spend money on whatever it found necessary to reach its target profit; the target profit was negotiated in a budget process. During the case study, the company had an average full-time employee count of 52, with 9 of these employees occupying management positions, each with the responsibility for either product groups or departments (administration, accounting, service etc.).

In Denmark, the equipment the company produces and sells (high-tech equipment for disabled people) is paid for either fully or partially by the public sector. An end user can choose to be treated in and receive the equipment from public or private hospitals. Private hospitals typically have shorter waiting lists and will provide the equipment more quickly than public hospitals. However, the end users in private hospitals pay a portion of the equipment costs themselves, while the other part is paid through reimbursement from the public sector directly to the private hospital. The reimbursement is a fixed amount regardless of which technological class the product belongs to. Consequently, if the end user receives treatment and equipment from a private hospital, the reimbursement will be a fixed amount of money covering the approximate cost of treatment and the cheapest product variant. If an end user wants a better product (either in terms of product quality or technology), he or she must pay the difference in cost for the more expensive variant.

The analysis in the following section describes how different movements[4] in the RC network affected managerial actions and managers' possibilities for decision-making. First, it describes the internal management accounting structures in the RC, with a particular focus on the budgeting process and the mobilisation of a new budget structure and responsibility structure for middle managers in the organisation. After that, it describes the issues related to the evaluation of the business unit's and managers' performance as well as to interventions related to remedying 'poor' performance. The study also discusses how interventions related to this remedying affect the way the responsible

(*footnote continued*)
time consuming.

[4] We use the term 'movements' and not 'change' to make the point that 'change' in constructivist research is a problematic notion, as it entails the modernist belief that 'organizational space and time are unique and linear' and that 'actors (or researchers) can identify a reality to trace the scale and direction of changes' (Quattrone & Hopper, 2001, p. 403).

centre works in practice and, relatedly, how the relations between the physical and the virtual space result in non-intuitive effects on how managers understand what it means to be responsible/accountable.

Following the analysis, the implications for decision-making and managerial action are further investigated in the discussion and conclusion.

4. Analysis

The empirical analysis is structured chronologically to show how and why decision rights in the RA setup transformed during the course of the studied period.

The analysis focuses on the managerial concerns within the Danish subsidiary and what it was like to be an accountable manager with decision rights within this RA context. HQ interfered with the Danish subsidiary, especially following periods of unsatisfactory performance relative to the budget; therefore, the analysis will also focus on how and why HQ intervened in the management actions of the Danish subsidiary.

The plot of the storyline focuses on the relationship between accounting numbers, which constitute the virtual space, and the company managers' actual engagement with customers in the market (that constitute the physical space). The inadequacies of virtual space (i.e. the accounting system and indications by the system that the subsidiary was underperforming) instigated a number of actions, which could be characterised as 'repair' of the unsatisfactory performance. Some of these actions came from the Danish managers while others came from HQ, but all the actions taken in the physical space were conducted in an attempt to change the performance in the virtual space (which the managers themselves did not find valid). The actions required by HQ restricted and changed what it meant to be a 'responsible' manager with decision-making rights over a particular organisational area. Decision rights were displaced to other organisational actors than the ones formally responsible for them. Thus, the effects of the RA setup were not a matter of its design but rather of this practical mobilisation of actions to fix unsatisfactory performance, represented in the virtual space via the performance indicators.

4.1. In the beginning: laissez-faire management style

In 2010, Disability Corp. Denmark chose to change its internal structures of responsibilities and decision rights. This section describes how and why these changes occurred, offering insights into how the processes unfolded in relation to the physical space and the virtual space as well as the consequences of these changes for responsibility.

Before 2010, the Danish subsidiary had not used budgets as tools to evaluate the performance of its managers. The former CEO and CFO had a laissez-faire management style. They maintained this style by keeping the budget responsibility at their own desks rather than delegating it to the sales managers. Managers had been expected to perform satisfactorily in their jobs without the delegation of budget responsibility, and this had been a successful management style until now.

Therefore, no budget responsibility had been delegated to the managers, but they still knew what was expected of them. As the HR manager stated, 'What they should sell, they knew that of course. They also knew what their sales numbers were. But they didn't know what they spent their money on' (Interview, 11.01.2010). The planning of marketing and sales expenditures was nevertheless important, even though the sales managers were not economically responsible for spending levels. One sales manager explained:

> *Year after year we plan activities which are going to happen each year. And that depends a little bit on how the market is developing. We look after that when we are in the field, especially in the production industry. And when we feel like understanding the pulse of the market, then we plan our marketing strategy after that. Marketing and sales strategy. And then, once every year, we write down how our activities look, what the target group and purpose of the activity is and what the expected output is. That is essentially the management tool they have on an overall basis in relation to what we are going to do when and at what point in time. Then we delegate the tasks internally in the team: who can, relative to other customers, et cetera et cetera, participate in those activities.*
>
> *Interview*, 11.01.2010

This absence of an explicit measure of economic performance and accountability characterised all the Danish managers in this subsidiary before 2010. For example, the stock and logistics manager explained that his job was to conduct the logistics management in the best possible way, and his overall concern was to minimise decentralised stock without considering the economic effects of doing so. Therefore, his managerial considerations were predominantly related to physical space; his main objective was to order the most reasonable quantities of the products and not to order more units than needed, but the company had no report that illustrated how well he did this in economic terms.

4.2. Delegating responsibility within Disability Corp. Denmark

Within the group, the Danish subsidiary was managed as a profit centre. At the end of 2009, the CFO and CEO of Disability Corp. Denmark decided to rearrange the way managers were held responsible internally in the Danish organisation. They decided to do this because they had experienced high growth rates in the last 10 years and had grown significantly in size. Parallel to this, they had also developed a new strategy whereby they expected continued high growth rates. They believed a change in the internal responsibility structure was necessary for Disability Corp. Denmark to be able to deliver these results.

The Danish CEO and CFO decided to make this responsibility structure change by introducing a new practice whereby the budget for Denmark would be decomposed and delegated to the Danish managers, and they planned follow-up to see how well they performed on a monthly basis.

The purpose of this new budgeting practice was to delegate the responsibility for the achievement of the subsidiary's budget targets to the departments responsible for selling the different product categories. The department managers would therefore be assigned a proportion of the overall budget for Disability Corp. Denmark, and they would be responsible for achieving the goals established in the budget process. They implemented this new responsibility structure in the winter of 2009–2010, and it was planned to start formally at the beginning of the 2010–2011 budget year.

Virtually all the managers were recently employed and did not have a long history with the company; all the newly employed managers accepted the new responsibility structure and the decentralisation of the budget. The only manager who expressed opposition to the new budget practice had been a manager in Disability Corp. Denmark for many years. However, despite his opposition, the Danish top management pressed him to adapt to the new management practice. Top management thought his resistance was related to his educational background as a physiotherapist and thought that he might feel this new management style and requirements to act on and react to accounting numbers compromised his professional identity as a physiotherapist, even though his title was sales manager and not physiotherapist. Therefore, top management did not find his resistance a reasonable critique of the new budgeting practice; they felt it had arisen because he did not know what being a sales manager entailed (Interview with the CFO, 28.09.2010).

The budget for 2010–2011 was prepared by the Danish management team and was afterwards reviewed and modified slightly by HQ's accounting department; the Danish managers accepted these changes. However, as time went on, the managers' budget numbers became an increasingly larger problem for them:

CFO: If we look at the division of the budget in the individual areas, it is a bit more problematic than we had thought.

INT: How?

CFO: It has been difficult to get the plans they made to add up with what they think now, half a year later and after they have acquainted themselves with the business […] The reality has become a little bit distanced from what we thought. You know, a little bit too distanced. The tendency is that they [the sales managers] think new thoughts every second month […] In particular, the marketing and sales budget is problematic.

INT: What about sales?

CFO: Sales allocation is okay, and we know who is responsible for what part of the sale, and the goals for each month are meaningful. They are too high […], but that's how it is.

Interview with CFO, 28.09.2010

Following this, the CFO argued that the market had become more privatised than it had been in previous years, and this change towards privatisation affected the product quality category customers preferred. They started to buy products from cheaper product categories, and therefore, Disability Corp. Denmark's revenue targets were too high. This was one of the reasons that the managers 'thought new thoughts every second month': they had to revise their sales and marketing plans to adapt to these changes.

4.3. HQ's evaluation of the performance of the Danish subsidiary based on the virtual space of accounting

The budget developed by the Danish management team was based on certain conditions in the market. However, the market moved in a different direction than anticipated in the budgeting process (e.g. the proportion of the market that was privatised, as mentioned above). The new customers also demanded products from lower quality categories, with accompanying lower prices. Consequently, the monthly financial numbers reported to the group's HQ signalled negative performance relative to the initial budget. Eventually, the group's accounting department intervened and chose to place certain obligations on the Danish managers with regard to which sales and marketing activities they should undertake to try to resolve the problem of unsatisfactory performance. The Danish CFO explained:

CFO: As long as we have reasonable results, the group's accounting department stays away from details but sets some overall lines of direction.

INT: […] Control wise, they are open as long as you are performing well?

CFO: As long as it is going okay, they have kept themselves away.

Interview with CFO, 17.06.2010

However, as the CFO reiterated, the unsatisfactory performance did not emerge because the Danish middle managers shirked their responsibilities or made 'wrong' decisions but rather because the physical space (the market) moved differently than anticipated in the virtual space (the budget). Obviously, the Danish managers needed to act upon these changes in the market, but the group's accounting department did not have any particular knowledge about the Danish market and thus did not know about these changes. They could only see the derived effects in the performance numbers provided by the accounting data.

Based on their understanding of the performance numbers, the group's HQ chose to intervene and required the Danish managers to do certain things. This obviously affected the possibilities of managerial action within the Danish subsidiary (this will be elaborated upon in the next section). This reflects how the possibilities of managerial action and decisions are always potentially at stake in the hierarchy, even when responsibility structures are set to delineate who has the right to make which decisions. Decision rights are therefore a potential subject of negotiation between different stakeholders in the hierarchy who are interested in the financial performance of the RC.

4.4. Performance evaluation and interventions from HQ on managerial action and decision rights

Disability Corp. Denmark had difficulty agreeing on how to allocate the overall marketing budget among different departments. This resulted in a situation where the budget had been administratively divided along different activities:

CFO: Let's start with the positive. Regarding the monthly follow-up, we had the idea that we should use the format of sending sales numbers and expenditure numbers out, and then the managers should comment on a front page (of the Excel report) about what money they have used and why they have sold so much or not so much. And the format and templates work fine. If we look at the part regarding allocation, or not allocation, division of the budget between areas, it is a bit more problematic than we expected.

INT: How?

CFO: We never got the original budget divided and accepted that it was going to be like that.

Interview with CFO, 28.09.2010

The activities planned in the budget year were based primarily on what the company had done the year before as well as on the requirements for marketing and sales activities articulated in the budget letter from HQ, which was sent to all subsidiaries. This meant that during the year, the managers only had a relatively small proportion of their marketing budget to spend on unplanned events; the majority of the planned spending was allocated to activities that were specified in the local budgeting process. Therefore, the managers' freedom to decide which marketing activities to conduct was very limited.

Additionally, the requirements from HQ changed the accountability of the Danish managers: 'This started in the budgeting phase when HQ adjusted the draft budget. HQ adjusted the budget to ensure that the budget targets would deliver the required financial effects in terms of gross profit, OPEX and cash flow' (Interview with CFO, 28.09.2010). This meant that HQ's adjustments were not based on the opportunities that existed in the market; rather, they were made to ensure consistency between different elements in the virtual space, namely, consistency between the Danish budget goals and the group's budget goals. At the time, the CFO did not consider the adjustments by HQ to be a problem. However, at the meetings in which the Danish management team was supposed to allocate the marketing and sales budget to the managers' departments, they could not really grasp the implications for their future sales performance.

Due to HQ's strong concern for shareholder value, which was articulated in the yearly budget letter, there was a strict rule that managers were not allowed to exceed the costs planned in the budget because of a mandate to remain within operating expenditure (OPEX) requirements. These OPEX requirements from HQ further tightened the decision space of the managers. As time passed in the budget year, they felt the planned activities were consuming the managers' time and resources without contributing any value, and time and resources were already constrained.

In addition, due to bad performance numbers in the virtual space, the Danish managers were pressed by HQ to engage in certain activities with the customers. The managers felt that these activities increased costs but did not lead to higher sales. This enlarged the variance between the budget (in the virtual space) and the results (customers buying behaviour in the physical space and the inscribed actual performance in the virtual space), and the managers felt they were accountable for this even though they could not influence it. Therefore, the managers ended up in a situation of conflict between the virtual space of budgets and financial reports and the physical space of the market, where interventions based on poor performance numbers resulted in required activities that did not fix the problem. However, HQ evaluated performance and acted predominantly on elements from the virtual space and the relationship between the subsidiary's performance numbers and expectations regarding the financial effects on aggregated shareholder value performance measures, such as ROI and profit ratios; HQ did not base their decision on how effectively their required activities could generate revenue in the Danish market. Thus, HQ excluded concerns about the physical space from their proposed actions and decisions, whereas the Danish middle managers included these concerns because they felt it was their responsibility to exploit their knowledge about the market and how the company could generate further profits, given the market's changing conditions. Consequently, the managerial actions that HQ found reasonable differed from the actions that the Danish managers considered reasonable to improve their unsatisfactory performance. If the managers did not find the actions HQ pressed them to do reasonable and decided to do other things instead, they needed to come up with counter-arguments about why these activities would not be economically efficient as well as other possibilities and arguments that would convince HQ that they should do these things instead. However, this required the ability to argue effectively about why HQ's activities did not work in the Danish market.

Representing performance through accounting

The virtual space did not represent the physical space well enough to support good decisions. The monthly reporting practice intensified this problem because HQ's data did not represent the physical space well; the Danish accounting department reported Disability Corp. Denmark's actual performance every month to the group's HQ. However, the subsidiary and HQ did not use the same accounting system, and there was no electronic link between the data of the two systems. Therefore, the numbers were reported 'by hand' by one of the Danish accountants. As a result, HQ only got aggregated numbers, preventing them from analysing the data in detail, which they could do with other subsidiaries that used the same accounting system as HQ. Moreover, the template used for monthly reporting further hindered the use of accounting data for managerial decision-making, as expressed by a sales manager when asked which information she used in her work:

> *Sales manager: Every report I get is based on old customer data, and that is reports sent to Germany as well, and they are not edited. It is the same reports as we used last year too.*
>
> *INT: What do you mean when you say they are not edited?*
>
> *Sales manager: The information is in fact okay. The problem is that in the report I get, it looks like there are a lot of drops in sales here and there. If there isn't any sale, it's because the customer does not exist anymore. And that is because the accounting system reports on accounts that have had activity within the last two years. […] that means red red red red red red. And that is not how it actually is. […] It is not because we are falling behind; it is because our market in Denmark is so hard to identify. Who are the customers, how do they pay, who are you going to meet and so on. It has actually taken me a whole year to figure out, and as late as yesterday, the CFO and I had a meeting where I told him which future reports I need and how they must be built.*
>
> Interview, 20.01.2011

This indicates that the relationship between the virtual space and the physical space was challenged by the inflexibility of the reporting template relative to the dynamism in the market, for which the reporting template could not account. Thus, when the managers faced this problem, they provided HQ with counter-arguments about why the performance in the virtual space did not reflect their managerial performance in the physical space, which was related to their efforts to generate revenue with the product lines for which they were responsible. Such arguments could be, for example, that municipal mergers destroyed the continuity of different customer accounts, but there were also other dynamics in the market:

> *Sales manager: Something [a customer] that used to have the name Horsens Fysioterapi is today called FT Horsens. Because of the reports we send to Germany and because we are not entirely meeting the sales targets – neither by product line nor Disability Corp. Denmark as a whole – they are micromanaging down there. They say 'Hey, they are not visiting Horsens Fysioterapi'. No, we aren't, because we visit FT Horsens, which is exactly the same. We are using a lot of time on different explanations all the time; we are using too much time on explanations because the reports are not transparent.*[5]
>
> Interview with *sales* manager, 20.01.2011

The reason for this change was that 'Horsens Fysioterapi' was a local government entity that before the change provided some services, for which they needed equipment from Disability Corp. The local government then decided to move these services physically to another local government entity, 'FT Horsens'. Therefore, the inscriptions in the accounting system indicated that the sales manager underperformed in relation to the customer 'Horsens Fysioterapi' (for some technical accounting reasons they could not delete this account in the AIS), but in the physical space the activities were simply displaced to another local government entity, which now took care of the provision of these services to citizens. Together, these things meant that the virtual space of accounting portrayed a different version of the managers' performance than the performance perceived by the managers.

This is an example of the issue between virtual space and physical space; HQ intervenes when the monthly reports differ from the planned targets. However, HQ's visualisation of the Danish managers' performance was informed solely by the virtual space of financial reports and disregarded movements related to, for instance, mergers and customer name changes in the physical space. Therefore, HQ pressed managers to undertake certain activities without considering the local circumstances, even though, according to the Danish management team, there were obvious explanations in the market for the decrease in performance. The changes HQ saw via the virtual space of accounting information became more and more decoupled from what happened in the physical reality. Accountability therefore became focussed on managers' ability to come up with counter-arguments about the reasons for their unsatisfactory performance, which could not be grasped from the virtual space. The Danish managers provided counter-arguments to explain their unsatisfactory performance, but they were not strong enough to change the required actions and restore their decision authority.

4.5. Changing the possibilities of managerial action by spending money

The manager responsible for the Disability Intl. Intra product line, the largest product line in Disability Corp. Denmark, had been employed in the company for many years. As mentioned above, he was a physiotherapist by training, and it was hard for him to self-identify as a 'sales manager', which the new budgeting practice pushed him to become. In late summer 2010, he took sick leave due to stress. In his absence, the CEO temporarily managed the Disability Intl. Intra product line.

In the fall of 2010, the Danish CEO could see a problem with the overall sales figures in Disability Corp. Denmark; he had to do something. He decided to use a considerable proportion of the year's remaining marketing budget on a big launch of a new product in the Disability Intl. Intra product line. Disability Intl. Intra amounted to approximately 80% of the subsidiary's annual sales. Therefore, the CEO reasoned, this would be a good way to spend money to generate sales

[5] The customer names Horsens Fysioterapi and FT Horsens are pseudonyms.

growth.

However, there was currently a strong emphasis on financial performance indicators, and one of the most important indicators to meet was operating expenditure. Because of the significance of OPEX, the CEO's decision to spend money raised a new problem in Disability Corp. Denmark because the CEO's allocation of the marketing expenditure meant that he was using other product managers' marketing budgets. The consequence of this was that the other managers could not spend money to maintain relationships with their customers or start activities they felt were important for generating revenue growth.

The managers were still responsible for the budgets they had planned prior to the financial year. The fact that the CEO had two positions in the company created problems related to his decision to spend money on the Disability Intl. Intra product release; one of the managers said that the CEO exploited his power as CEO to promote the product line he himself was responsible for in his temporary appointment as product manager (Interview, 20.01.2011). However, in a later interview, another manager reflected on the decision and argued that this actually *could* have been the best use of the money for Disability Corp. Denmark at the time (Follow-up interview, conducted 28.09.2011).

This shows that the question of who could spend money further problematised the decision space of the Danish middle managers. In principle, anybody with a credit card could spend the company's money, and therefore use of the credit card problematised the boundaries of accountability in the RC by changing the possibilities for managerial action in the physical space. The middle managers' decision space was altered by the fact that the CEO, unilaterally, decided to use his credit card to pay for an unplanned marketing activity for the Disability Intl. Intra product line. In doing this, he spent money from the marketing budgets of other managers without consulting them.

Thus, the question of who had the right to the money was closely related to accountability in Disability Corp. Denmark. When the CEO decided to spend the money, the OPEX calculation from the virtual space had apparently gained such importance that it was able to rearrange the other managers' marketing money and move it to the CEO as product manager. This was not done by achieving consensus among the management team but by a simple payment through a credit card. This mundane use of the credit card together with the OPEX rule rearranged the managerial possibilities of the other Danish managers.

A peculiar aspect of the story lies in the power of the virtual space. The CEO managed to disregard the virtual space of accounting, as he did not find it representative of the reality within which he acted. Therefore, he thought about opportunities that existed outside the boundaries framed by the budget. But, because of the significance of the OPEX calculation, other managers were restricted in their possible managerial actions, including starting new marketing activities, by the CEO's choice to spend money, which further restricted the ability of the managers to act responsibly. The CEO thought about opportunity in the physical space while not being restricted by the boundaries set up by the calculations in the virtual space of accounting.

In sum, the particular circumstances in Disability Corp. Denmark described above illustrate how the structures of RA in practice are fragile. They are contested by many different elements of the practice within which RA unfolds, particularly by the tensions and inconsistencies between the virtual space of accounting and the physical space in which managers act. Emphasising a certain responsibility design as the a priori explanation of accountability and decision-making leads to conflict, and the dynamics of the physical space can change the significance of RCs in terms of decision authority (who can decide what) and what employees are accountable for.

5. Discussion

In this section, the empirical material will be discussed in relation to its implications for RA and then in relation to the possibilities of managerial action and the implications for performance evaluation when there are inconsistencies between the virtual space and the physical space.

5.1. *Responsibility accounting: structure and dynamics of distribution of decision rights*

In prior research, we have seen how the composition of accounting technologies such as RA, and their effects, arises through negotiations with different actors and their associated power struggles and how the inaccuracy and inadequateness of the data provided by such a system may undermine the credibility of the system (Bloomfield et al., 1992). Concentrating on the design and composition of the system and based on a broad understanding of RA, Bloomfield et al. (1992) show how technical problems related to accounting also have a social side as well as how the boundaries between social and technical solutions to accounting problems are dissolved. In a similar manner, Skærbæk and Tryggestad (2010) demonstrate how a system emerges through the formulations and negotiations that occur in the framing and overflowing of corporate strategy, where RA was one of the calculative devices by which the corporate strategy was performed.

Building on these prior constructivist approaches to studying RA, in this research we see how RC designs mobilise spaces in which managing occurs, and by doing so, they have effects on managerial action. Going beyond the focus on the emergence of a system and the manoeuvres that cause the system to become what it will be, which we see in Bloomfield et al. (1992), and Skærbæk and Tryggestad (2010)'s emphasis on RA as a device that co-performs the framing and overflowing of a corporate strategy, this article shows the complexities related to how RCs are composed and how they unfold in a managerial setting in practice (its *modus operandi*). It shows how decision opportunities and the way responsibility is managed are both formed by different elements from the organisation's physical space and the relationships of these physical elements with calculations in the virtual (accounting) space. A paradox emerged from the encounter between the structures of RA and the dynamic nature of practice: for its part, HQ takes the decision rights structure seriously, but this seriousness is challenged by the company's monthly reporting templates.

RA and its associated decision rights are phenomena that exist within a continuum of concerns from the physical space (e.g. objects, customers and competitors) to the virtual space (assembled via accounting through cost and revenue concerns from the reporting templates and calculations of shareholder concerns such as ROI and OPEX, which is articulated in the budget letter). Sometimes, the virtual space appears unproblematic and silent, and decisions can be made relatively easily. In these situations, the virtual space does not mediate the decision possibilities. At other times, however, the virtual space problematises managerial action, and negotiations become necessary. These happen inter alia through interventions from HQ, where decision rights and managerial responsibility are changed radically in the Danish subsidiary, and thus decision-making becomes more difficult and negotiable.

The storyline of the analysis shows that RA and its associated decision rights occur within (but are not determined by) relationships between the virtual space and the physical space, as illustrated in Fig. 1. These spaces, depending on their composition, signify one of many possible versions of what it means to have decision rights and to take managerial action; decision rights structures are thus dynamic.

This also means that the physical and virtual spaces illustrated in Fig. 1 mediate the effects of the RC, as these circumstances have the potential to continuously expose new concerns. These spaces mediate the decision space of managers by creating boundaries to possibilities and, consequent to these boundaries, by reducing or extending managers' decision-making opportunities (while the case in this study shows reduction rather than extension, there is nothing to indicate that these movements cannot go in both directions).

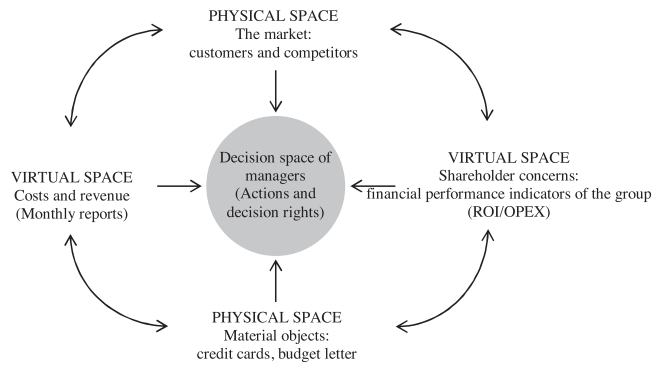

Fig. 1. Responsibility accounting – mediators of decision rights.

Decision rights and managerial action are not directly effectuated by calculations and managerial structures within the organisation. The effects of RA on managerial action are collective effects emerging from relationships between concerns in the physical space and the virtual space.

The mediation of managerial action originating from the physical space is related to the physical reality in which managers operate. Physical things and social phenomena, such as credit cards, the spending of the marketing budget and customers, all affect the way in which managerial action occurs, but the RA literature has been unable to satisfactorily explain their effects.

Another important part of the physical space is how hierarchical, organisational relations are organised in that space. In Disability Corp., the HQ is organised at a physical distance from the Danish subsidiary, meaning that the two entities do not often engage with each other in the physical world. Due to the physical distance, they communicate through calculations and performance inscriptions from accounting reports. This physical distance thus means that the virtual space of accounting inscriptions is important to HQ for obtaining an image of whether the Danish managers are acting responsibly. Often, this is only visible through calculations and numbers, which singularise the complexity and heterogeneity of managing in the physical space.

The credit card is a good example of how material objects from the physical space affect decision rights. By introducing a credit card, the boundaries between the allocated budgets and decision rights became less clear, as managers could spend each other's budgets. This happened when the CEO, who was made the temporary product manager for the Disability Intl. Intra product line, chose to spend money from other managers' marketing budgets on his own product line. The credit card made this possible, thereby making the economic structures of RA less clear and creating confusion in managerial action and decision-making.

Changes in the physical space affect the virtual space. However, the virtual space is also the place where entities from the physical space are rendered calculable and performable. Because the changes in the virtual space of accounting do not exactly replicate the changes in the physical space but are rather translations of these changes (Robson, 1991) that are evident in accounting numbers and calculations, inconsistencies can emerge between the meaning of performance indicators and the managers' actual performance. These inconsistencies give rise to contradictions and conflicts, as is evident in our analysis. In Disability Corp., two overall virtual spaces were identified[6], one in Denmark, formed in the Danish accounts and monthly reports provided to HQ. The calculations made within this space by the Danish managers always related to the market within which they operated. The other virtual space was at HQ. In this space, the reported performance numbers were related to shareholder concerns. Because of these discrepancies, the intersection of these two virtual spaces produced inconsistencies and conflicts with regard to setting directions for managerial action; thus, performance numbers took on different meanings between the spaces.

The virtual space at HQ signified the performance numbers of the Danish subsidiary via group profitability and the performance numbers' effects on key financial ratios and shareholder wealth. Two examples of this are the OPEX rules and the budget letter. The virtual space at the Danish subsidiary related performance numbers to concerns about short-term and long-term profit possibilities in the market, in which conditions were changing. This led to local decisions that, in some instances, required more free capital than the organization had. Most capital was tied to certain activities, which was decided before the budget period started, and the Danish managers were not in a position to reallocate it to other activities.

In these ways, the virtual spaces relate to the physical space, and the relationships between the two provide a dynamic dimension to the structures of RA and thus to the effects of RA on the distribution of decision rights and managerial action. This is contrary to what we see in the existing RA literature, where the relationship between the accounting structure and its environment is treated as something stable and appears unproblematic (McNally, 1980; Melumad et al., 1992; Rowe et al., 2008); as soon as reasonable RA structures are designed and implemented, desired organisational effects emerge. In this study, the decision rights that we would have expected to be placed in the Danish profit centre were displaced elsewhere in the organisation due to problematisations emerging from the interrelations between the physical and virtual spaces.

5.2. Responsibility accounting and the possibilities for managerial action

The connections between the virtual space of accounting and the physical space in which decisions and actions take place have significance for the actions available to managers. Thus, the relationships between the two constitute a notion of accountability; that is, these relations signify what managers are accountable for. However, this does not imply that decisions and managerial actions are technologically or socially determined, as, for example, a deterministic research approach would argue (Latour, 2005; Mackenzie & Wajcman, 1999). The reason for this is that managers always have alternative lines of action through which they can escape the actions determined by the strategic networks that form the expectations regarding what they should do. In the case of Disability Corp., the strategic network consists of accounting calculations (revenue and OPEX) and objects such as the budget letter, telephone conversations with HQ and email interventions from HQ.

The analysis illustrates the difficulties regarding managerial action and managing assigned responsibilities in an RA structure, which also connects with the literature on incomplete performance indicators (Jordan & Messner, 2012). Even though accounting calculations constitute a basis for directing and translating actions and results at the overall organisational level, managers are still expected to act on the particular movements they experience in the markets within which they act (see also Kirk & Mouritsen, 1996). These market movements are not always part of the virtual space of accounting, and thus it is sometimes difficult to understand why some actions are taken when considering the accounting numbers alone. Therefore, the resulting actions as responsible managers in response to the market movements are not always justifiable with regard to the accounting calculations, which do not take into account these particular movements, as the calculations are estimations and aggregations that do not completely represent (Jordan & Messner, 2012) the particularities of practice in which the managers operate (Messner, 2009). This incompleteness can render the performance numbers 'weak', which is definitely true in terms of their potential for justifying managers' actions as 'good' or 'bad'. This, however, is a different version of 'weak' numbers than we see in Dambrin and Robson (2011), where weakness signifies 'weak traces',

[6] The definition of the virtual space has been treated in singular so far (as one virtual space). However, there is nothing that prohibits the existence of more than one virtual space in an organisation, and the analysis also reveals two virtual accounting spaces in Disability Corp., as described here.

which means that the reversibility of the performance numbers is compromised and therefore the performance numbers are 'interrupted inscriptions', so it is not possible to trace them backwards in their translation to their source. As such, the performance numbers in this study as well as those in Jordan and Messner (2012) and Dambrin and Robson (2011) can all be said to be 'imperfect numbers' (Dambrin & Robson, 2011).

In line with Apostol (2015), who provides a discussion of counter-accounts to discredit corporate reports and challenge the status quo in society by problematising the prioritisation of state interests, accountability in this case is about managers' ability to provide counter-arguments for the unsatisfactory performance indicated by the performance numbers provided by the accounting system. This resonates with Cooper and Ezzamel's (2013) strategies of engagement with global discourses articulated by HQ. However, where Cooper and Ezzamel's (2013) engagement strategies focus on how people react to discourses and render them practical (e.g. by choosing certain BSC designs and their associated KPIs), in Disability Corp., the counter-arguments provided by the subsidiary's managers are not easy to categorise using Said's 'molestation', which are collisions and compromises, refusals, sacrifices, renunciations and selfishness (Cooper & Ezzamel, 2013). This may be because the storyline in Disability Corp. is not about how discourse is put into practice but rather about how differences between HQ and the local subsidiary's readings of the inscriptions are handled. The analysis illustrates that a manager seems to be successful in being accountable if he or she has 'a counter-ability' – 'counter' because it refers to counter-arguing claims of unsatisfactory performance from HQ, which uses evidence based on accounting performance numbers, and 'ability' because these arguments can be provided only when the managers possess the capacity to relate the physical and the virtual spaces in convincing ways (i.e. construct credible relations between the two).

In this research, 'a counter-ability' does not have exactly the same meaning as 'accounterability' in Joannides (2012) and Kamuf (2007); in the case of Disability Corp., 'a counter-ability' is the ability to mobilise counter-arguments to others' claims about performance and convince them that the counter-account is valid. This is consistent with Dambrin and Robson's (2011) 'bricolage', which is the ad hoc use of other information to build up new arguments[7] . 'A counter-ability' is therefore the ability of managers to mobilise a bricolage of counter-arguments that refute HQ's reading of the performance numbers.

According to Kamuf (2007), accounterability means to stop calculating and 'listen at another rhythm for something else, for an incalculability and unforeseeability that cause the accountability programme to stammer or stutter'. Thus, the difference is that the Disability Corp. case shows that the 'counter-ability' still happens within the regime of calculation but denotes the ability to counter-argue others' claims of (under)performance within the accountability regime, similar to how counter-accounts work in Apostol (2015). Nonetheless, 'a counter-ability' and counter-accounts are still slightly different, as where counter-accounts in Apostol (2015) are the product of formalised processes of providing alternative versions of social and environmental reporting organised by civil society organisations, the 'counter-ability' of managers manifests in their everyday work, when managers account for why performance numbers appear as they do. In this way, the 'counter-ability' of managers is a possible strategy of engagement with the performance numbers (Cooper & Ezzamel, 2013). It is a less formalised and more narrative variant of Apostol's (2015) counter-accounts, which are used to criticise the status quo in society.

The way in which accountability is rendered practical in Disability Corp. is therefore related to successfully mobilising one's 'counter-ability'. Hence, accountability is still about offering reasons for one's conduct and explaining and justifying what one does or does not do (Messner, 2009; Roberts, 1991). However, this emphasises the ability to counter-argue others' claims of unsatisfactory performance.

5.3. The contest of performance: collision of spaces and the effects on decision rights

Accounting forms a virtual space within which performance is made calculable. However, for this space to be productive, it must create relations to other entities within the context in which it operates. Therefore, the significance of the virtual space can be different in different physical spaces of the organisation. At HQ, the virtual space is related to the group's financial KPIs and thus to the production of shareholder value (OPEX and ROI) and fulfilling shareholder expectations, whereas in the Danish subsidiary, the accounting numbers are related to the dynamics of the market and developments in the customer base and their requirements. These two different ways of engaging with the virtual space, at HQ and in Denmark, constructed by the monthly reports, end with a 'truth game' (Foucault, 1988) in which the 'true' understanding of responsibility related to managerial action is at stake. The question is whether managers are acting responsibly and taking reasonable managerial actions that favour the interests of the organisation's owners. In the case, this led to conflicting readings of the accounting reports, and the contradictions produced a (temporal) managerial void for the Danish managers. In this void, nobody knew exactly which premises could justify their actions as reasonable. Should they try to exploit new market opportunities and disregard the performance numbers? Or, should they align with the performance numbers and HQ and do what HQ suggested, even when they felt that those activities prevented them from acting as responsible managers? This conflict sometimes led to surprising managerial actions, for example, spending money from other people's budgets.

Anti-essentialism (e.g. Foucault, 1984), could provide an argument about why the virtual space creates conflict in lines of action when relating the performance numbers to the physical space. From this point of view, the virtual space lacks an interior essence, and therefore the organisational effect of the virtual space is produced through its exterior relations to other entities in its context. As such, when reading accounting information, one relates it to other entities such as shareholder expectations or market development. Therefore, the accounting numbers produce different directions for action depending on this contextualisation. In the context of Disability Corp., the interpretation of performance numbers was a process of relating actions from the physical space and performance numbers from the virtual spaces for the Danish managers, while HQ related the performance numbers to budget expectations and shareholder concerns, resulting in the emergence of conflicting interpretations of the performance numbers. These interpretations created tensions between the Danish managers' decision-making and choices of managerial actions and HQ's interpretation of the performance of the Danish managers. Thus, a managerial dilemma emerged; on the one hand, the managers do their best to live up to their professional responsibility in the version produced by the performance numbers, but on the other hand, they also constantly negotiate the adequateness of different actions with their knowledge of how the physical space (customers and competitors) develops.

The point is that such conflicting significations always potentially exist due to contextualisation. Thus, the virtual space of accounting calculations produces lines of possible action that are not always consistent with the actions the middle managers find appropriate and responsible within the physical space in which they are present. In Disability Corp., the managers' decision rights were restricted by the interventions from HQ, and it was not clear to the managers which decisions and actions they should implement, as the actions considered appropriate in one context (Denmark) were considered inappropriate in the other (HQ). Therefore, the relationship between the physical space

[7] Dambrin and Robson (2011) write that bricolage is the process of building new referents, but here we equate referent and argument, as we do not see a considerable different between these terms.

and the virtual space problematises the effects of the allocation of decision rights.

This situation contradicts functionalist views on the advantages of responsibility accounting; the relationships between the virtual spaces and physical space co-construct the direction of managerial action and reorganise decision rights. Hence, decision rights are not structural. In fact, they are effectively performed by movements and utterances in the physical space and in the virtual spaces provided by accounting calculations (Mackenzie, 2006).

6. Conclusion

This research has concentrated on the application of RA in practice and how the performance of RA changes because accounting, by arranging virtual space, renders certain things from the physical space calculable and thereby mediates the possibilities of managerial action. However, when calculations are incomplete (Jordan & Messner, 2012), opportunities exist both within and outside the boundaries of the reasonable actions that are formed by the virtual space of accounting. The decisions and actions that are considered adequate depend on how the accountability structures are formed, for example, through the mobilisation of RA and the managers' abilities to provide counter-arguments to HQ's suggested lines of action (i.e. the managers' 'counter-abilities').

It has therefore been shown that when an organisation and its management control system cannot embrace the dynamism of the physical in the virtual space, tumultuous decision-making and managerial action result. In the case study, the old planning mechanism seemed more obvious, and decision rights were clear. With the formation of the profit centre, the decision rights became more tumultuous, partly because of the conflict between the stability of structures and the dynamics of practice but also because this conflict resulted in judgments based on accounting information that the organisational actors found incomplete in terms of representing their performance, as the it did not reflect important dimensions of the managers' performance (Jordan & Messner, 2012). This happened not only because the knowledge produced by accounting was based on the ideal of representing the phenomena it ought to represent but also because the process of its construction was mediated by the power of different entities in the physical and virtual spaces, as we see in other research (Dambrin & Robson, 2011; Justesen & Mouritsen, 2011; Quattrone & Hopper, 2005).

Managerial action is an effect of relations between the physical space of the organisation and the market and the virtual space of calculations. The relationship between the two mediates the managers' perceived possibilities of action. This means that when RCs are designed and implemented, it is not sufficient to consider their structural effects and strategy, as suggested by the present literature on RA (see Rowe et al., 2008). The relations and movements between the two spaces of decision-making are important for understanding how the managerial effects of RA come about. For managers, this means that the structural view of accounting should not be taken too seriously when performance indicators are incomplete. In such situations, managing also requires considering and acting on the things happening outside the virtual space of accounting. Accounting singularises and stabilises the complexity of the practice in which managers are expected to act responsibly. However, the movements and complexity of the practice are sometimes lost in translation, and the complexity of the practice, which is not accounted for, can be just as important for decision-making; it may even be more important than the things visualised by accounting information. This is consistent with the notion of Mouritsen and Kreiner (2016) that accounting works not as an answer machine but as a question machine in the sense that accounting 'is a mechanical procedure that offers propositions about problems to be concerned with in the future' (p. 21).

The effects of RA structures on managerial action and decision-making are not a simple matter of design but rather rely on how the virtual space of calculations produces relationships with the physical space of the market and the organisation in order to contextualise the accounting numbers and provide them with meaning. The movements in these two spaces change the perceived possibilities of managerial action, as decision-making in an RA organisation must embrace both the effects of decisions in the physical space and the virtual space constituted by accounting calculations. Placing too much emphasis on the results of decisions based on calculations in the virtual space sometimes pushes managers to take inappropriate actions because accounting does not provide the answer. It provides impersonal and mechanical calculations rather than miniature copies of the world, and in doing so, it principally 'replaces the world by calculations' (Mouritsen & Kreiner, 2016, p. 24).

In this case, taking accounting too seriously caused HQ to believe that the Danish managers had made inappropriate decisions, as accounting was elevated to a more powerful frame of reference for decision-making than the managers' own understanding of how the market had evolved.

The analysis also illustrated that an RC manager is successful in being responsible not if he or she possesses 'account-ability', which is the ability to give and receive accounts of one's conduct (Munro, 1996), but rather if he or she possesses 'a counter-ability' enabling him or her to counter-argue the claims of unsatisfactory performance made by HQ. This 'counter-ability' enables the manager to successfully relate the physical and the virtual space in new and convincing ways, which are not evident in the virtual space of accounting. Therefore, accountability in the case company is more about mobilising the manager's 'counter-ability' than it is about administering the responsibility which managers are given based on their specific knowledge of the market in which they operate.

References

Alvesson, M. (2003). Beyond neopositivists, romantics, and localists: A reflexive approach to interviews in organizational research. *Academy of Management Review, 28*(1), 13–33.

Alvesson, M., & Karreman, D. (2007). Constructing mystery: Empirical matters in theory development. *Academy of Management Review, 32*(4), 1265–1281.

Andon, P., Baxter, J., & Chua, W. F. (2007). Accounting change as relational drift: A field study of experiments with performance measurement. *Management Accounting Research, 18*(2), 273–308.

Anthony, R., & Govindarajan, V. (2003). *Management control systems* (11th ed.). New York, NY: McGraw-Hill.

Apostol, O. M. (2015). A project for Romania? The role of the civil society's counter-accounts in facilitating democratic change in society. *Accounting Auditing & Accountability Journal, 28*(2), 210–241.

Bloomfield, B. P., Coombs, R., Cooper, D. J., & Rea, D. (1992). Machines and manoeuvres: Responsibility accounting and the construction of hospital information systems. *Accounting, Management and Information Technologies, 2*(4), 197–219.

Bulloch, J. (1964). Responsibility accounting – A results-oriented appraisal system. *Human Resource Management, 2*(4), 25–31.

Callon, M. (1986). Some elements of a sociology of translation: Domestication of the scallops and the fishermen of St Brieuc Bay. *Sociological Review Monograph, 32*.

Catasús, B. (2008). In search of accounting absence. *Critical Perspectives on Accounting, 19*, 1004–1019.

Chua, W. F. (1995). Experts, networks and inscriptions in the fabrication of accounting images: A story of the representation of three public hospitals. *Accounting, Organizations and Society, 20*(2/3), 111–145.

Cochoy, F. (2008). Calculation, qualculation, calqulation: Shopping cart arithmetic, equipped cognition and the clustered consumer. *Marketing Theory, 8*(1), 15–44.

Cochoy, F., Trompette, P., & Araujo, L. (2016). From market agencements to market agencing: An introduction. *Consumption Markets & Culture, 19*(1), 3–16. https://doi.org/10.1080/10253866.2015.1096066.

Cooper, D. J., & Ezzamel, M. (2013). Globalization discourses and performance measurement systems in a multinational firm. *Accounting, Organizations and Society, 38*(4), 288–313. https://doi.org/10.1016/j.aos.2013.04.002.

Dambrin, C., & Robson, K. (2011). Tracing performance in the pharmaceutical industry: Ambivalence, opacity and the performativity of flawed measures. *Accounting Organizations and Society, 36*(7), 428–455.

Emerson, R. M., Fretz, R. I., & Shaw, L. L. (1995). *Writing ethnographic fieldnotes.* Chicago: The University of Chicago Press.

Foucault, M. (1984). Nietzsche, genealogy, history. In P. Rabinow (Ed.). *The foucault reader.* Pantheon.

Foucault, M. (1988). Technologies of the Self. A seminar with Michel Foucalt. In L. H. Martin, H. Gutman, & P. H. Hutton (Eds.). *Technologies of the self.* London, England:

Tavistock Publications.
Granlund, M., & Lukka, K. (2017). Investigating highly established research paradigms: Reviving contextuality in contingency theory based management accounting research. *Critical Perspectives on Accounting, 45*, 63–80. https://doi.org/10.1016/j.cpa.2016.11.003.
Higgins, J. A. (1952). *Responsibility accounting. The Arthur Andersen Chronicle*.
Hirst, M. (1983). The controllability of financial outcomes. *ABACUS, 19*(1), 29–38.
Hopper, T., & Macintosh, N. B. (1993). Management accounting as disciplinary practice: The case of ITT under Harold Geneen. *Management Accounting Research, 4*(3), 181–216.
Horngren, C. T. (1978). *Accounting for management control.* New Jersey: Prentice-Hall.
Ijiri, Y. (1975). *Theory of accounting measurement.* Sarasota: American Accounting Association.
Jensen, M. C., & Meckling, W. H. (1995). Specific and general knowledge and organizational structure. *Journal of Applied Corporate Finance, 8*(2), 4–18.
Joannides, V. (2012). Accounterability and the problematics of accountability. *Critical Perspectives on Accounting, 23*(3), 244–257.
Jordan, S., & Messner, M. (2012). Enabling control and the problem of incomplete performance indicators. *Accounting Organizations and Society, 37*(8), 544–564. https://doi.org/10.1016/j.aos.2012.08.002.
Justesen, L., & Mouritsen, J. (2011). Effects of actor-network theory in accounting research. *Accounting Auditing & Accountability Journal, 24*(2), 161–193.
Kakkuri-Knuuttila, M.-L., Lukka, K., & Kuorikoski, J. (2008). Straddling between paradigms: A naturalistic philosophical case study on interpretive research in management accounting. *Accounting Organizations and Society,* 33.
Kamuf, P. (2007). Accounterability. *Textual Practice, 21*(2), 251–266.
Karpik, L. (2010). *Valuing the unique. Oxfordshire*. UK: Princeton University Press.
Kirk, K., & Mouritsen, J. (1996). Spaces of accountability: Accounting systems and systems of accountability in a multinational. In R. Munro, & J. Mouritsen (Eds.). *Accountability. Power, ethos and technologies of managing.* London: International Thomson Business Press.
Kohler, E. (1983). *Kohler's dictionary for accountants.* Prentice-Hall: Englewood Cliffs.
Lapsley, I. (1994). Responsibility accounting revived? Market reforms and budgetary control in health care. *Management Accounting Research, 5*(3), 337–352.
Latour, B. (2005). *Reassembling the social: An introduction to actor–Network theory.* Hampshire: Oxford University Press.
Macintosh, N. B., Shaerer, T., Thornton, D. B., & Welker, M. (2000). Accounting as simulacrum and hyperreality: Perspectives on income and capital. *Accounting Organizations and Society, 25*(1), 13–50.
Mackenzie, D. (2006). *An engine, not a camera: How financial models shape markets.* Cambridge: The MIT Press.
Mackenzie, D., & Wajcman, J. (1999). Introductory essay: The social shaping of technology. In D. Mackenzie, & J. Wajcman (Eds.). *The social shaping of technology*. New York: Open University Press.
McNally, M. (1980). Responsibility accounting and organisational control: Some perspectives and prospects. *Journal of Business Finance & Accounting, 7*(2), 165–181.
Melumad, N., Mookherjee, D., & Reichelstein, S. (1992). A theory of responsibility centers. *Journal of Accounting and Economics, 15*(4), 445–484.
Mennicken, A., & Miller, P. (2012). Accounting, territorialization and power. *Foucault Studies, 13*, 4–24.
Merchant, K. A., & Van der Stede, W. A. (2007). *Management control systems.* Prentice Hall.
Messner, M. (2009). The limits of accountability. *Accounting Organizations and Society, 34*(8), 918–938.
Miles, M. B., Huberman, M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (2nd ed.). Sage Publications.
Miller, P. (2001). Governing by numbers: Why calculative practices matter. *Social Research, 68*(2), 379–396.
Miller, P., & O'Leary, T. (1994). The factory as laboratory. *Science in Context, 7*(03), 469–496.
Miller, P., & O'Leary, T. (1987). Accounting and the construction of the governable person. *Accounting Organizations and Society, 12*(3), 235–265.
Miller, P., & O'Leary, T. (2007). Mediating instruments and making markets: Capital budgeting, science and the economy. *Accounting Organizations and Society, 32*(7), 701–734. https://doi.org/10.1016/j.aos.2007.02.003.
Miller, P., & Power, M. (2013). Accounting, organizing, and economizing: Connecting accounting research and organization theory. *The Academy of Management Annals, 7*(1), 557–605.
Miller, P., & Rose, N. (1990). Governing economic life. *Economy and Society, 19*(1), 1–31.
Mouritsen, J. (1994). Rationality, institutions and decision making: Reflections on March and Olsen's rediscovering institutions. *Accounting Organizations and Society, 19*(2), 193–211.
Mouritsen, J., & Kreiner, K. (2016). Accounting, decisions and promises. *Accounting Organizations and Society, 49*, 21–31. https://doi.org/10.1016/j.aos.2016.02.002.
Munro, R. (1996). Alignment and identity work: The study of accounts and accountability. In R. Munro, & J. Mouritsen (Eds.). *Accountability. Power, ethos and technologies of managing.* London: International Thomson Business Press.
Neimark, M., & Tinker, T. (1986). The social construction of management control systems. *Accounting Organizations and Society, 11*(4/5), 369–395.
Pollock, N., & Campagnolo, G. M. (2015). Subitizing practices and market decisions. In M. Kornberger, L. Justesen, A. K. Madsen, & J. Mouritsen (Eds.). *Making things valuable* (pp. 89). Oxford, UK: Oxford University Press.
Preston, A. M., Cooper, D. J., & Coombs, R. W. (1992). Fabricating budgets: A study of the production of management budgeting in the national health service. *Accounting Organizations and Society, 17*(6), 561–593.
Quattrone, P., & Hopper, T. (2001). What does organizational change mean? Speculations on a taken for granted category. *Management Accounting Research, 12*(4), 403–435.
Quattrone, P., & Hopper, T. (2005). A time–Space odyssey: Management control systems in two multinational organisations. *Accounting Organizations and Society, 30*(7–8), 735–764.
Revellino, S., & Mouritsen, J. (2015). Accounting as an engine: The performativity of calculative practices and the dynamics of innovation. *Management Accounting Research, 28*, 31–49.
Roberts, J. (1991). The possibilities of accountability. *Accounting Organizations and Society, 16*(4), 355–368. https://doi.org/10.1016/0361-3682(91)90027-C.
Robson, K. (1991). On the arenas of accounting change: The process of translation. *Accounting Organizations and Society, 16*(5–6), 547–570.
Robson, K. (1992). Accounting numbers as "inscription": Action at a distance and the development of accounting. *Accounting Organizations and Society, 17*(7), 685–708.
Rowe, C., Birnberg, J. G., & Shields, M. D. (2008). Effects of organizational process change on responsibility accounting and managers' revelations of private knowledge. *Accounting Organizations and Society, 33*(2–3), 164–198.
Skærbæk, P., & Tryggestad, K. (2010). The role of accounting devices in performing corporate strategy. *Accounting Organizations and Society, 35*(1), 108–124.
Strauss, A. L. (1987). *Qualitative analysis for social scientists.* Cambridge: Cambridge University Press.
Virtual (2018). *Oxford English dictionary.* Retrieved fromwww.oed.com.
Zimmerman, J. L. (2009). *Accounting for decision making and control* (6th ed.). New York: McGraw-Hill.